DOCUMENT RESUME

ED 408 998 IR 018 411

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TITLE Perceptions of Instructional Design Process Models.
PUB DATE Jan 97
NOTE 6p.; In: VisionQuest: Journeys toward Visual Literacy. Selected Readings from the Annual Conference of the International Visual Literacy Association (28th, Cheyenne, Wyoming, October, 1996); see IR 018 353.
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Comparative Analysis; *Diagrams; Graduate Students; Higher Education; *Instructional Design; Instructional Materials; Perception; Use Studies; Visual Aids; *Visual Perception

ABSTRACT

Instructional design is a process that is creative, active, iterative and complex; however, many diagrams of instructional design are interpreted as stifling, passive, lock-step and simple because of the visual elements used to model the process. The purpose of this study was to determine the expressed perceptions of the types of flow diagrams likely to be used to convey the instructional design process. Participants were 31 graduate students at a university in the southeastern United States. Each participant was randomly assigned to one of three reader groups; each reader group contained all three variations of the diagram, but presented in different orders. The diagram forms were constructed on variations of straight line, arrow and plane geometric shape arrangements. Boxes, ovals and a mix of boxes and ovals formed the dominant characteristic of the diagrams. Participants were requested to write three to five adjectives within two minutes; this was repeated three times. Similarities, differences, and combinations were used as labels to organize the words used in the responses. The general perceptions of the participants supported the actual practice of instructional design which can be confusing for those new to the process, flowing in terms of one activity leading to another and linear at a macro level. Organized, busy and rigid as descriptions of the flow diagram composed of boxes and straight lines with arrows is consistent with some approaches to the systematic design of instruction. Circular aptly describes the fundamental concept of instructional design. The information from this study can assist educators in understanding how people read diagrams, particularly with regard to perceptions of process models. (AEF)

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Perceptions Of Instructional Design Process Models

by Robert Maribe Branch

ED 408 998

Abstract

Instructional design is a process that is creative, active, iterative and complex. However, many diagrams of instructional design are interpreted as stifling, passive, lock-step and simple because of the visual elements used to model the process. The purpose of this study was to understand how the instructional design process is perceived through diagrams composed of boxes and straight lines with arrows, and ovals and curved lines with arrows. While confusing, flowing and linear are used to describe both diagram types, organized and busy were mentioned only to describe the diagram composed of boxes and straight lines with arrows.

Introduction

Diagrams are the connection between an idea and the conveyance of a message. Designs depicting processes such as flow diagrams are usually sequential and involve a directional element. Plane geometric shapes, lines and pointing devices, such as arrows are three of the basic design elements found in diagrammatic communication. Perceptions and interpretations can be influenced by the designers' choice of visual elements, which should help show the relationships among those elements. The interpretations of each element represent a micro perspective which influences the understanding of the whole diagram. Flow diagrams which are commonly utilized to present the instructional design (ID) process "may be heavily influenced by the way in which ID models are visually depicted" (Rezabek & Cochenour, 1996, p. 299). Graphic elements which elicit viewer interpretations that are inconsistent with the original intent of the whole diagram diminish the fidelity between practice and the conceptual portrayal of that practice.

The purpose of this study was to determine if the expressed perceptions of the types of flow diagrams likely to be used to convey the instructional design process. Perceptions were elicited on three variations of a flow diagram conveying similar content; without any text. This current study seeks to advance the work of Rezabek and Cochenour (1996) about the "importance of the visual display of ID models for professionals teaching the instructional design process . . ." (p. 309). This study also extends the work of Branch and Bloom (1995) who contend instructional design professionals can improve the fidelity of the messages received by readers through better understanding of the use of visual elements in the portrayal of models, flow diagrams, processes and ideas. The foundation of this preliminary investigation is based on perceptions of the reader, variation in graphic element type and accurate interpretations of visualized process models.

Research Questions

Several assumptions guided the data collection and analysis of this study. The fundamental assumption was that visual displays promote viewer understanding, and therefore, the impact of perceptions of process models and the role of graphic elements in the accurate portrayal of instructional design influence the construction of knowledge about a defined practice. Perception is operationalized here to mean a relative concept based on personal interpretations of visual elements within an environment, our epistemology, the way we organize information to make meaning, and our cultural heritage. Perceptually, the meaning of a whole diagram depends on the relationship between its parts. Visual elements have a conceptual relationship based on their similarity, proximity and continuity. Thus, variations in the composition of graphic elements influence perception. The contention is that instructional design is process oriented, based on procedures [both *product* procedures and *process*

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procedures], iterative, involves concurrent actions and is best modeled by visual displays. The main research question is: do varieties of flow diagrams conveying similar content elicit similar adjectives?

Methodology

The participants were 31 graduate students at university in the Southeastern United States. Twenty-three females and eight males generated data for the study. Ten of the participants were under age 30, twelve were between the ages of 31 and 40, and eight participants were between the ages of 41 and 55 years old. Nineteen participants were masters students and twelve were doctoral students. While approximately half of the participants were majoring in the field of Instructional Technology, practically all were unfamiliar with the details of the instructional design process. Each participant was randomly assigned to one of three reader groups. Each reader group contained all three variations of the diagram; but presented in different orders. The reader group was determined by the order in which the participant read the three diagrams forms (Figure 1). The diagram forms were constructed on variations of straight line, arrow and plane geometric shape arrangements. Boxes, ovals and a mix of boxes and ovals formed the dominant characteristic of the diagrams each group was asked to read. The "Boxes" diagram is composed of rectangles and straight lines with arrows, the "Ovals" diagram is composed of ovals and curved lines with arrows and the "Mixed" diagram is composed of rectangles, ovals, and hybrids of the two. Figures 2, 3 and 4 contain the actual diagrams each participant was asked to read.

Data were collected at the beginning of the class. The participants were requested to write 3-5 adjectives within two minutes. This was repeated three times. Time on task lasted approximately 8-10 minutes. The person administering the diagram forms remained silent during the entire data collection. Each participant wrote about four words (mean = 3.77 words).

Figure 1

Reader Groups

Group	Diagram Order
"Boxes"	Boxes - Ovals - Mixed
"Ovals"	Ovals - Mixed - Boxes
"Mixed"	Mixed - Boxes - Ovals

Figure 2

"Boxes" diagram adapted from Dick and Carey (1996)

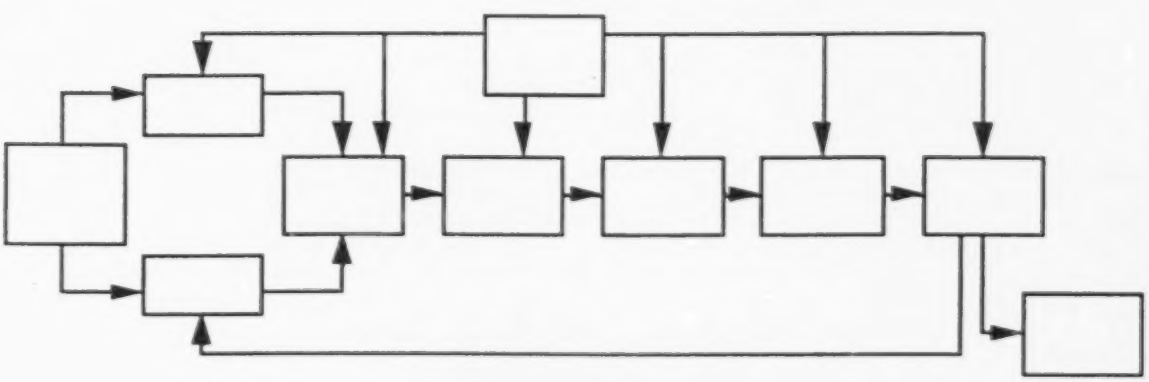


Figure 3
"Ovals" diagram

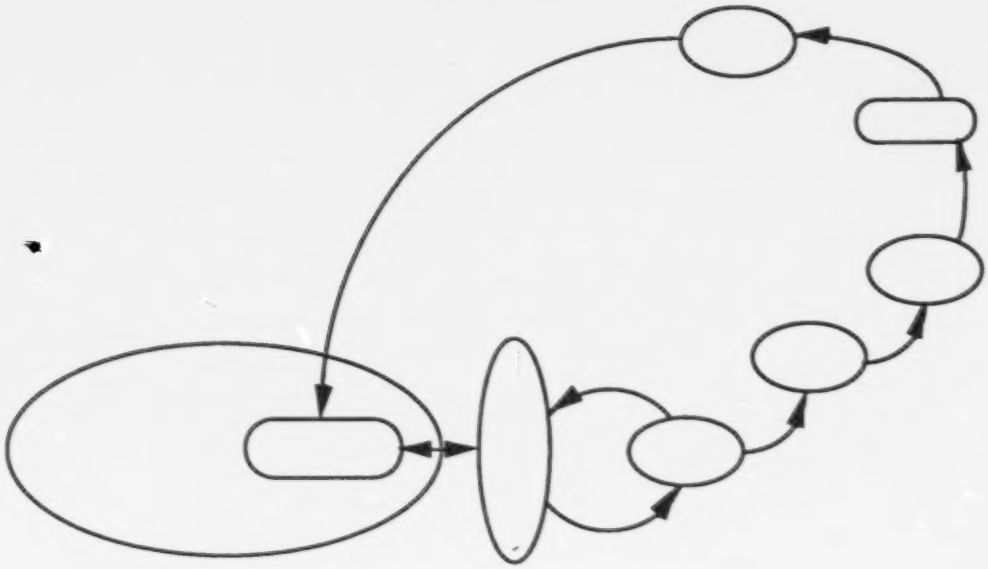
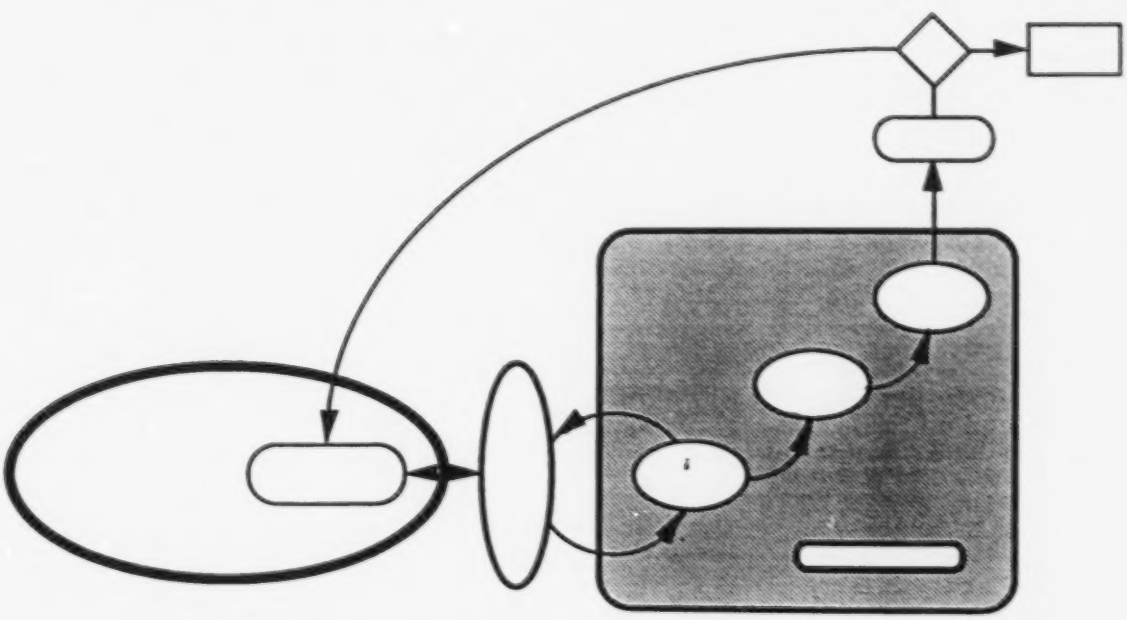


Figure 4
"Mixed" diagram adapted from Edmonds, Branch and Mukherjee (1994)



Results

Figure 5 summarizes the frequency of words used to describe each of the three different diagrams. Similarities, differences and combinations in interpretation emerged and were used as labels to organize the findings. The following observations are based on the author's perception of the data.

Similarities

1. ***Confusing*** was the most frequently written word used to describe the "Boxes" diagram and the "Mixed" diagram; and was the sixth most frequently written word to describe the "Ovals" diagram.
2. ***Flowing*** was the 2nd and 3rd most frequently written word describing the "Boxes" and "Mixed" diagrams respectively; while mentioned only once by those who read the "Ovals" diagram.
3. ***Linear*** was the 4th frequently mentioned word to describe both the "Boxes" and "Mixed" diagrams.

Differences

1. ***Organized*** was the third most written adjective used to describe the "Boxes" diagram, but not mentioned at all for either the "Ovals" or "Mixed" diagrams.
2. ***Busy*** was written several times to describe the "Boxes" diagram, but not written for either the "Ovals" or "Mixed" diagrams.
3. ***Rigid*** was written as frequently as busy to describe the "Boxes" diagram, but not written for either the "Ovals" or "Mixed" diagrams.
4. ***Circular*** was written most frequently to describe the "Ovals" diagram and not written at all for the "boxes" diagram and only once to describe the "Mixed" diagram; while linear was not written at all to describe the "Ovals" diagram.

Combinations

1. ***Systematic*** was written several times to describe the "Boxes" and "Ovals" diagrams, but not written to describe the "Mixed" diagram.
2. Words beginning with the letter **c** were used to describe 30% of the adjectives for the "Ovals" diagram and 35% of the adjectives for the "Mixed" diagram. Words such as circular, continuous, cyclical, confusing, closed, complicated, correctional, conceptual, clear, complex, complicated and computer related were written; while confusing, complex and computer programming were written to describe the "Boxes" diagram. No other letter formed the beginning of more than 15% of any of the other lists of adjectives.

Conclusion

Because the actual practice of instructional design can be confusing for those new to the process, flowing in terms of one activity leading to another and linear at a macro level, the general perceptions of the participants for this study were accurate. Organized [highly structured], busy and rigid as descriptions of the flow diagram composed of boxes and straight lines with arrows is consistent with some approaches to the systematic design of instruction, however, such views represent limited knowledge about the actual nature of the instructional design process. Circular aptly describes the fundamental concept of instructional design, thus, the readers contributed support for the contention that ID process models should be incorporate ovals and curved lines with arrows. The information from this study can assist educators understand how people read diagrams, particularly with regard to perceptions of process models.

People introducing the concept of instructional design may want to utilize a variety of process diagrams to communicate situations where multiple functions occur concurrently; and where certain sets of functions concur in relative sequence to the other sets. While the fundamental concept of the instructional design process can be represented with rectilinear models, the actual practice of instructional design is better represented with curvilinear models. Therefore, circular, continuous, complex and interconnected flow diagrams should be used to convey accurate portrayals of instructional design practice.

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Figure 5

Frequency of Words Used to Describe Each Diagram

Boxes n=14 23 different adjectives		Ovals n=10 23 different adjectives		Mixed n=7 20 different adjectives	
confusing	7	circular	5	confusing	3
flowing	6	continuous	5	conceptual	2
organized	5	sequential	4	flowing	2
linear	4	cyclical	3	linear	2
systematic	4	interconnected	3	procedural	2
busy	3	confusing	2	appealing	
rigid	3	systematic	2	bottom-up	
interconnected	2	closed		circular	
boxy		complicated		clear	
complex		correctional		complex	
computer programming		discrete		complicated	
exploded		feedback		computer related	
design		flowing		dependent [interconnected]	
frame		multiple		empty	
geometric		oblong		ending and beginning	
graphical		odd		evaluative	
interesting		partitioned		informational	
jumble		process		lacking	
managerial		reactionary		logical	
model		reinforcing		unbalanced	
product oriented		rotating			
skeleton		variable			
square		versatile			

Subsequent research needs to be conducted to confirm the findings of this study and to further identify the visual elements; and their juxtaposition that best represents the instructional design process. Knowledge about how people perceive instructional design process models should assist educators choose ways to enhance learner achievement.

References

Branch, R., & Bloom, J. (1995). *The role of graphic elements in the accurate portrayal of instructional design.* In R. E. Griffin, D. G. Beauchamp. J. M. Hunter, & C. B. Schiffman (Eds.), *Selected Readings of the 26th Annual Convention of the International Visual Literacy Association* (pp. 166-179). Tempe, AZ.

Dick, W., & Carey, L. (1996). *The systematic design of instruction* (4th Ed.) Glenview, Illinois: Scott, Foresman and Company.

Edmonds, G., Branch, R. C., & Mukherjee, P. (1994). A conceptual framework for comparing instructional design models. *Educational Technology Research and Development, 42*(4), 55-62.

Rezabek, L. L., & Cochenour, J. J. (1996). The impact of line on perception of an ID process model. In R. E. Griffin, D. G. Beauchamp. J. M. Hunter, & C. B. Schiffman (Eds.), *Selected Readings of the 26th Annual Convention of the International Visual Literacy Association* (pp. 299-310). Chicago, IL.

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